CONTENTS

Preface ix

Conference committees x

Opening address
M. Tachiki xi

Welcome address
T. Nagamiya xiii

Yamada Science Foundation – Executive members of the Foundation xiv

Contents xv

Chapter 1. Heavy fermions

Superconductivity and magnetism in heavy-electron materials
H.R. Ott 1

Heavy fermions and superconductivity: "superconducting spectroscopy" of non-magnetic impurities in $CeCu_2Si_2$
F. Steglich, U. Ahlheim, U. Rauchschwalbe and H. Spille 6

Superconducting properties of actinide compounds and other recent results
J.L. Smith, Z. Fisk, J.D. Thompson, J.O. Willis and H.A. Borges 14

Quasiparticle interactions and nature of pairing in heavy fermions
C.M. Varma 17

Specific heat and resistivity of (U, Th)Pt_3
K. Kadowaki, M. van Sprang, J.C.P. Klaasse, A.A. Menovsky, J.J.M. Franse and S.B. Woods 22

Impurity and defect induced variation of Hall effect and magnetoresistivity of the heavy fermion systems $CeCu_2Si_2$ and $CeCu_6$
G. Adrian and H. Adrian 26

Normal and superconducting properties of the magnetic superconductor URu_2Si_2
Y. Ōnuki, T. Yamazaki, I. Ukon, T. Omi, K. Shibutani, T. Komatsubara, I. Sakamoto, Y. Sugiyama, R. Onodera, K. Yonemitsu, A. Umezawa, W.K. Kwok, G.W. Crabtree and D.G. Hinks 29

Magneto-resistance of heavy-fermion compounds
U. Rauchschwalbe and F. Steglich 33

Polarized light scattering studies of heavy-fermion superconductors
S.L. Cooper, M.V. Klein, Z. Fisk, J.L. Smith, M.B. Maple and M.S. Torikachvili 37

Normal ground-state properties of heavy-fermion actinide compounds
B. Renker, F. Gompf, E. Gering, P. Frings, H. Rietschel, R. Felten, F. Steglich and G. Weber 41

Attenuation of longitudinal and transverse ultrasound in p- and d-wave superconductors
H. Monien, K. Scharnberg and D. Walker 45

The Kondo boson theory of the dynamic susceptibility of heavy fermions
A. Auerbach, J.H. Kim and K. Levin 50

Spin density wave and anisotropic superconductivity in heavy-fermion materials
K. Machida and M. Kato 54

Superconductivity of uranium based metallic glasses
E.W. Scheidt, H. Riesemeier, K. Lüders, G. Indlekofer, P. Oelhafen, H.-J. Güntherodt and M. Robrecht 58

Effect of crystal field on the thermal expansion coefficients of $CeCu_6$
G. Oomi, K. Takahashi, F.J. Ohkawa, Y. Ōnuki and T. Komatsubara 61

Superconducting and heavy-fermion behaviour in the $(La_{1-x}Ce_x)Pd_2Ge_2$ system
H. Iwasaki, N. Kobayashi and Y. Muto 64

Resonant photoemission study of the heavy-fermion superconductor $CeCu_2Si_2$ and the pseudo-ternary system $Ce_{1-x}La_xCu_2Si_2$
A. Grassmann, G. Saemann-Ischenko and R.L. Johnson 67

Observation of pronounced phonon softening in the strongly interacting Fermi liquid U_6Fe
B. Renker, F. Gompf, E. Gering and H. Rietschel 70

Ultrasonic attenuation experiments in normal-state UPt_3
V. Müller, D. Maurer and K. de Groot 73

Superconductivity and magnetic interactions in the pseudoternary bct system $Ho(Rh_{1-x}Ru_x)_4B_4$
H. Adrian, A. Thomä, A. Meinelt, R. Blank, B. Hensel, G. Adrian and M. Steiner 76

Theory of momentum-dependent magnetic response in heavy-fermion systems
Y. Kuramoto and T. Watanabe 80

Attractive interactions due to RKKY exchange interactions in heavy-electron superconductor
F.J. Ohkawa and T. Yamamoto 84

Liquid ^{3}He revisited from a new variational description within a strong coupling framework
J.P. Bouchaud and C. Lhuillier 87

Study of the degenerate Anderson models by using the $1/N$-expansion method
Y. Kurora and D.L. Mills 91

Quantum Monte Carlo simulation of the one-dimensional periodic Anderson model – non-half-filled cases
T. Saso 95

Chapter 2. Magnetic superconductors

A neutron scattering study of the coexistence of magnetism and superconductivity in $HoMo_6S_8$ single crystals
P. Burlet, A. Dinia, S. Quezel, W.A.C. Erkelens, J. Rossat-Mignod, R. Horyn, O. Peña, C. Geantet, M. Sergent and J.L. Genicon 99

Metastable superconductivity below T_{c2} in single-crystal $HoMo_6S_8$
Y. Koike, T. Fukase, N. Kobayashi, S. Hosoya and H. Takei 106

Magnetic-field-induced superconductivity in the ferromagnetic state of $HoMo_6S_8$
M. Giroud, J.L. Genicon, R. Tournier, C. Geantet, O. Peña, R. Horyn and M. Sergent 113

Superconductivity and magnetism of the pseudoternary rare earth boride systems $R(Rh_{1-x}Co_x)_4B_4$ (R = Lu, Er, Ho)
H.C. Ku, P. Klavins and R.N. Shelton 117

Superconductivity and magnetism on the bct $R(Rh_{1-x}Ru_x)_4B_4$ system
H. Iwasaki, S. Yagi, M. Ikebe, H. Hayashi and Y. Muto 121

Strain effects on superconducting and ferromagnetic transitions of $ErRh_4B_4$
Y. Koike, T. Fukase, H. Takeya, H. Takei, T. Shishido, N. Toyota and Y. Syono 126

Magnetic field induced superconductors, $Eu_{0.8}Sn_{0.2}Mo_6S_{7-Y}Se_Y$
S. Kawamata, N. Kobayashi, M. Ikebe and Y. Muto 130

Superconducting and magnetic properties of $CeRh_4B_4$ and $PrRh_4B_4$
K. Kumagai, T. Ooyama, H. Nakajima and M. Shimotomai 133

Spin fluctuations in $LuRu_4B_4$ and superconductivity
A. Sulpice, J. Odin, P. Lejay, Shao Li Qin, P. Gandit, J. Chaussy and R. Tournier 137

Thermal expansion of the magnetic superconductor $Er_{0.4}Ho_{0.6}Rh_4B_4$
R. Villar, S. Bourgeal, M.A. Lopez de la Torre, S. Vieira, M.B. Maple and M.S. Torikachvili 141

Effects of the low-lying phonons in Chevrel phase compounds $Mo_6Se_{8-x}S_x$
M. Furuyama, N. Kobayashi, K. Noto and Y. Muto 145

Chapter 3. High-T_c oxide superconductors

Superconducting glassy state in high-T_c oxides
K.A. Müller, K.W. Blazey, J.G. Bednorz and M. Takashige 149

$RBa_2Cu_3O_{7-\delta}$ (R = rare earth) high-T_c magnetic superconductors
M.B. Maple, Y. Dalichaouch, J.M. Ferreira, R.R. Hake, B.W. Lee, J.J. Neumeier, M.S. Torikachvili, K.N. Yang, H. Zhou, R.P. Guertin and M.V. Kuric 155

Magnetic fluctuations and order in exotic superconductors
G. Aeppli 163

High-T_c superconductivity in perovskite-type oxides (*Abstract*)
J.G. Bednorz and K.A. Müller 166

High temperature superconductivity research at Argonne National Laboratory
F.Y. Fradin 167

Oxygen deficiency in $Ba_2YCu_3O_{7-\delta}$: the need for a microscopic description
B. Batlogg and R.J. Cava 173

High temperature superconductivity research at Houston
C.W. Chu 177

Fabrication and properties of thin superconducting oxide films
R.B. Laibowitz, R.H. Koch, P. Chaudhari and R.J. Gambino 182

Experimental investigation of the electronic states in high T_c copper oxides
S. Uchida 185

Synthesis and properties of thin film high-T_c oxide superconductors
M.R. Beasley 191

Treatment of Y–Ba–Cu–O superconductors by pulsed electric fields and currents
D. Djurek, M. Prester, S. Knezović, Dj. Drobac, O. Milat, N. Brničević, K. Furić, Z. Medunić, T. Vukelja and E. Babić 196

The resonating valence bond state and high temperature superconductivity
G. Baskaran 200

Superconductivity in organics and oxides: similarity and dissimilarity
H. Fukuyama and Y. Hasegawa 204

Electronic structure, charge transfer excitations and high temperature superconductivity
A.J. Freeman, J. Yu, S. Massidda and D.D. Koelling 212

Crystallochemical aspect of high temperature superconducting oxides
Y. Syono, M. Kikuchi, K. Oh-Ishi, A. Tokiwa, K. Kusaba, K. Hiraga, T. Kajitani, D. Shindo, H. Yamauchi, Y. Morioka, H. Arai, K. Nagase, N. Kobayashi, T. Sasaoka and Y. Muto 218

Superconductive properties of single crystal $YBa_2Cu_3O_x$
Y. Iye, T. Tamegai, H. Takeya and H. Takei 224

Anisotropy in the magnetic properties of single-crystal $Y_1Ba_2Cu_3O_{7-x}$
W.J. Gallagher, T.K. Worthington, T.R. Dinger, F. Holzberg, D.L. Kaiser and R.L. Sandstrom 228

Antiferromagnetic correlations and superconductivity in the La_2CuO_4 class of oxides
H. Maletta, M.W. Shafer, T. Penney, B.L. Olson, A.M. Torressen and R.L. Greene 233

High-T_c superconductivity in $Ln_{2-x}Ba_xCu_2O_5$ $(1.0 \leqslant x \leqslant 1.6)$ and $LnBa_2Cu_3O_7$ (Ln = Dy, Er, Tm, Yb and Y) compounds
G.V. Subba Rao, U.V. Varadaraju, R. Vijayashree, K. Padmanabhan, R. Balakrishnan, T.A. Mary, N.P. Raju, R. Srinivasan, U. De, J. Janaki and T.S. Radhakrishnan 237

Critical current density in high-T_c $Y_{1-x}Ln_xBa_2Cu_3O_{7-\sigma}$ system
K. Noto, H. Morita, K. Watanabe, T. Murakami, Y. Koyanagi, I. Yoshii, I. Sato, H. Sugawara, N. Kobayashi, H. Fujimori and Y. Muto 239

Strong-coupling effects and isotope exponents in high-T_c superconductors
B. Ashauer, W. Lee, D. Rainer and J. Rammer 243

Cooperation of superexchange and polaron effects as pairing mechanism in high-T_c superconductors
Y. Kuramoto and T. Watanabe 246

Coulomb interactions and effective strong coupling Hamiltonians in Cu–O superconductors
A.J. Fedro, H.-B. Schüttler and S.K. Sinha 250

Electronic structure calculations for high-T_c oxides
T. Oguchi, K.T. Park, K. Terakura and A. Yanase 253

High-T_c superconductivity mediated by charge transfer excitations
E. Abrahams, S. Schmitt-Rink and C.M. Varma 257

How strongly are electrons correlated in the high-T_c superconducting materials?
A.M. Oleś, J. Zaanen and P. Fulde 260

Variational Monte Carlo studies of highly correlated electron systems
H. Shiba and H. Yokoyama 264

Bipolaron models of superconductors
P. Prelovsek, T.M. Rice, F.C. Zhang and A. Klostermann 268

Electron–phonon interaction in the new oxide superconductors
W. Weber and L.F. Mattheiss 271

Fermi liquid theory of $La_{2-x}Sr_xCuO_4$: optical properties
P.A. Lee, G. Kotliar and N. Read 274

Exchange enhancement of electron–phonon coupling and possible ineffectiveness of spin fluctuation coupling
D.J. Kim 278

Optical studies of high-T_c oxide superconductors
S. Sugai, S. Uchida, H. Takagi, K. Kitazawa, S. Tanaka, M. Sato and S. Hosoya 282

Effects of crystal anisotropy on magnetization and magnetic order in superconducting $RBa_2Cu_3O_{7-x}$
R.N. Shelton, R.W. McCallum, M.A. Damento, K.A. Gschneidner Jr., H.C. Ku, H.D. Yang, J.W. Lynn, W.-H. Li and Q. Li 285

Pressure effects on new high-T_c superconductors
P. PrzysŁupski, T. Skośkiewicz, J. Igalson and J. RauŁuszkiewicz 289

Cu NMR in the superconducting state of $ReBa_2Cu_3O_x$
T. Kohara, Y. Kohori, Y. Kitaoka, S. Hiramatsu, K. Ueda, M. Kaburagi, Y. Oda and K. Asayama 292

Ultrasonic experiments on the high-T_c-superconductor $Y_{2-x}Ba_xCuO_{4-\sigma}$
V. Müller, K. de Groot, D. Maurer, Ch. Roth and K.H. Rieder 296

NQR and NMR of high-T_c superconducting oxides $(La_{1-x}Ba_x)_2CuO_{4-y}$ and $YBa_2Cu_3O_{7-y}$
Y. Kitaoka, S. Hiramatsu, K. Ishida, T. Kohara, Y. Oda, K. Amaya and K. Asayama 298

Neutron and X-ray diffraction studies of $RBa_2Cu_3O_{7-x}$
H. Asano, K. Takita, T. Ishigaki, F. Izumi, E. Takayama-Muromachi, Y. Uchida and N. Watanabe 302

Specific heat, susceptibility and resistivity measurements of high-T_c superconductors $YBa_2Cu_3O_{7-x}$
C. Ayache, B. Barbara, E. Bonjour, P. Burlet, R. Calemczuk, M. Couach, M.J.G.M. Jurgens, J.Y. Henry and J. Rossat-Mignod 305

Superconducting and magnetic properties of Fe-doped oxide superconductors
C.W. Kimball, J.L. Matykiewicz, J. Giapintzakis, A.E. Dwight, M.B. Brodsky, M. Slaski, B.D. Dunlap and F.Y. Fradin 309

Critical field, susceptibility and NQR measurements on the high-T_c superconductor Y–Ba–Cu–O
H. Riesemeier, E.W. Scheidt, I. Stang, K. Lüders, V. Müller, H. Eickenbusch and R. Schöllhorn 312

Effect of oxygen concentration on superconducting properties of $Ba_2YCu_3O_{7-x}$
Y. Ishizawa, O. Fukunaga, H. Nozaki, T. Tanaka and A. Ono 315

Oxygen deficiency and superconducting properties of Ba–Y–Cu oxide compounds
K. Nakamura, H. Aoki, A. Matsushita, S. Kaise, Y. Asada, T. Matsumoto, T. Hoshi and K. Ogawa 318

Quasiparticle tunneling and Josephson tunneling of high-T_c oxide superconductors
I. Iguchi, S. Narumi, Y. Kasai and A. Sugishita 322

Low-field anisotropic properties of single crystals of superconducting $YBa_2Cu_3O_{7-\sigma}$
J. Hammann, M. Ocio, E. Vincent, A. Bertinotti, D. Luzet, A. Revcolevschi and J. Jegoudez 325

Anisotropic upper critical magnetic field in single crystal $Ba_2YCu_3O_{7-y}$
Y. Hidaka, M. Oda, M. Suzuki, A. Katsui, T. Murakami, N. Kobayashi and Y. Muto 329

Characterization of the high-T_c phase and its metamorphic phases $Ba_2YCu_3O_{7-\sigma}$
M. Ishikawa, T. Takabatake and Y. Nakazawa 332

High-T_c superconducting properties in $(Y_{1-x}Tl_x)Ba_2Cu_3O_{7-y}$, $Y(Ba_{1-x}K_x)_2Cu_3O_{7-y}$ and $YBa_2(Cu_{1-x}Mg_x)_3O_{7-y}$
Y. Saito, T. Noji, A. Endo, N. Higuchi, K. Fujimoto, T. Oikawa, A. Hattori and K. Furuse 336

Superconductivity and crystal structure of $YBa_2Cu_{2.87}O_{6.76}$
Y. Oda, T. Kohara, I. Nakada, S. Sato, T. Kaneko, E. Sakagami, H. Fujita, H. Toyoda, M. Onuki and K. Asayama 339

High-T_c oxide Y–Ba–Cu–O – normal and superconducting properties and phases
A. Matsushita, H. Aoki, Y. Asada, T. Hatano, K. Kimura, T. Matsumoto, K. Nakamura and K. Ogawa 342

Thermoelectric power in the normal state of high-T_c superconductors $RBa_2Cu_3O_x$ (R = yttrium or rare earth)
R.S. Kwok, S.E. Brown, J.D. Thompson, Z. Fisk and G. Gruner 346

Oxygen stoichiometry and physical properties of high-T_c superconducting oxides
H. Takagi, S. Uchida, H. Iwabuchi, H. Eisaki, K. Kishio, K. Kitazawa, K. Fueki and S. Tanaka 349

Superconductivity of La_2CuO_4 and $YBa_2Cu_3O_7$
J.L. Tholence 353

Superconductivity in modified systems based on $YBa_2Cu_3O_{7-\sigma}$
Y. Maeno, M. Kato, Y. Aoki, T. Nojima and T. Fujita 357

Specific heat of the high-T_c superconductors $(La, M)_2CuO_4$ and $YBa_2Cu_3O_7$ in magnetic fields
N.E. Phillips, R.A. Fisher, S.E. Lacy, C. Marcenat, J.A. Olsen, W.K. Ham, A.M. Stacy, J.E. Gordon and M.L. Tan 360

Studies of high-T_c oxide superconductors
M. Sato, S. Hosoya, K. Fukuda, M. Sera, M. Onoda, S. Shamoto, K. Oka and H. Unoki 363

Soft-plasmon mechanism for high-T_c superconductivity
J. Ashkenazi, C.G. Kuper and R. Tyk 366

Effect of next-nearest-neighbor transfer energy on the quasi-two-dimensional superconductivity
A. Mishima 371

Variational theory of superconductivity with application to the electron gas
Y. Takada 374

Many-polaron theory for superconductivity in quasi two-dimensional strongly coupled electron–phonon systems
K. Nasu 378

Electronic structure, spin fluctuation, and superconductivity of extended Hubbard model: a possible mechanism of high-T_c in oxide superconductors
K. Miyake, T. Matsuura, K. Sano and Y. Nagaoka 381

Electronic structure of superconducting oxide – effect of non-metallic elements
A. Yanase, T. Yamasaki, M. Onozaki, K. Terakura and K.T. Park 385

Gap structure and spin excitation in high-T_c oxides
H. Ebisawa, Y. Isawa and S. Maekawa 388

Excitation spectra and Bose condensation in superconductors with strong correlation
Y. Isawa, S. Maekawa and H. Ebisawa 391

Inter-layer pairing mechanism of high-T_c superconductors
T. Takemori, M. Inoue, K. Ohtaka, R. Yoshizaki and T. Sakudo 396

Superconducting T_c enhancement by one-dimensional charge density wave in the oxide superconductor Y–Ba–Cu–O
Y. Okabe, Y. Suzumura, T. Sasaki and H. Katayama-Yoshida 399

Low-temperature specific heat of orthorhombic and tetragonal phases of $Ba_2(RE)Cu_3O_{7-\delta}$ (Re = Gd, Dy, Ho, Er and Tm)
Y. Nakazawa, M. Ishikawa and T. Takabatake 404

Anisotropic properties of epitaxial $Ba_2YCu_3O_{7-y}$ thin films
Y. Enomoto, M. Suzuki, M. Oda and T. Murakami 408

Resistivity of $EuBa_2(Cu_{1-y}Zn_y)_3O_x$ as a function of temperature, magnetic field, pressure and Zn concentration
H.A. Borges, G.L. Wells, S.-W. Cheong, R.S. Kwok, J.D. Thompson, Z. Fisk, J.L. Smith and S.B. Oseroff 411

Electronic properties of orthorhombic $LaBa_2Cu_3O_y$
A. Maeda, T. Yabe, K. Uchinokura and S. Tanaka 414

Effect of chemical substitution on the high-T_c behavior of $YBa_2Cu_3O_7$
U.V. Varadaraju, S. Natarajan, T.S. Sampath Kumar, M. Paranthaman, G.V. Subba Rao, N.P. Raju and R. Srinivasan 417

Transport properties of high-T_c superconducting oxides
H. Ishii, H. Sato, N. Kanazawa, H. Takagi, S. Uchida, K. Kitazawa, K. Kishio, K. Fueki and S. Tanaka 419

Investigation of electronic and phonon states of the high-T_c Cu-oxide superconductivity
S. Tajima, A. Masaki, I. Rittaporn, H. Sato, H. Ishii, H. Takagi, S. Uchida and S. Tanaka 423

The consequences of intergrain Josephson coupling in ceramic high-temperature superconductors
J.F. Kwak, E.L. Venturini and D.S. Ginley 426

Characteristics of high-T_c oxide wire
O. Kohno, Y. Ikeno, N. Sadakata, M. Sugimoto and M. Nakagawa 429

Structural investigation of superconductors with high transition temperature
M. Matsui, K. Ohmori, T. Shimizu and M. Doyama 432

Magnetic and superconducting properties of $Ba_2YCu_3O_y$: oxygen concentration dependence
M. Tokumoto, H. Ihara, M. Hirabayashi, K. Murata, N. Terada, T. Matsubara and Y. Kimura 436

Josephson effects on $YBa_2Cu_3O_{7-\delta}$
H.C. Yang 439

Physical properties of single-phase high-T_c superconductor $YBa_2Cu_3O_7$
K. Kadowaki, M. van Sprang, Y.K. Huang, J.Q.A. Koster, H.P. van der Meulen, Z. Tarnawski, J.C.P. Klaasse, A.A. Menovsky, J.J.M. Franse, J.C. van Miltenburg, A. Schuijff, T.T.M. Palstra, R. de Ruiter, P.W. Lednor and H. Barten 442

Possibility of negative exchange interaction effect in Re–Ba–Cu oxides
Y. Koike, T. Nakanomyo, T. Hanaguri, T. Nomoto and T. Fukase 446

Transition behavior of magnetic susceptibility and electrical resistivity of Y–Ba–Cu–O superconductor
H. Morita, K. Watanabe, Y. Murakami, S. Kondo, Y. Obi, K. Noto, H. Fujimori and Y. Muto 449

High-T_c superconductivity in $(RE)Ba_2Cu_3O_x$ – structure, transport and magnetism
T. Tamegai, I. Oguro, K. Koga, A. Watanabe and Y. Iye 453

Magnetic ordering in the high-T_c superconductor $(RE)Ba_2Cu_3O_x$
I. Oguro, T. Tamegai and Y. Iye 456

ESR and magnetic susceptibility of high-T_c oxide superconductors
T. Kohara, H. Yamagata, M. Matsumura, Y. Yamada, I. Nakada, E. Sakagami, Y. Oda and K. Asayama 459

Superconductivity and normal-state properties in (Y, Sc, Ba)–Cu oxides
N. Mori, Y. Takano and K. Sekizawa 462

Temperature dependence of electrical resistivity in $(La_{1-x}Y_x)_{1.85}Sr_{0.15}CuO_4$ superconductors
K. Mori, Y. Isikawa, K. Kobayashi, M. Sasakawa and K. Sato 465

Superconducting properties of the high-T_c oxide compounds
N. Kobayashi, O. Nakatsu, S. Terada, T. Sasaoka, T. Sasaki, M. Furuyama, K. Noto, M. Kikuchi, A. Tokiwa, K. Oh-Ishi, Y. Syono and Y. Muto 469

Transport properties of $REBa_2Cu_3O_{9-\delta}$
H.E. Horng 472

Photoelectron spectroscopy of $LnBa_2Cu_3O_{7-\delta}$ (Ln = Y and Sm)
T. Takahashi, F. Maeda, H. Arai, H. Katayama-Yoshida, Y. Okabe, T. Suzuki, Y. Takakuwa, S. Hosoya, A. Fujimori, T. Miyahara, T. Koide, T. Shidara, M. Sato, S. Shamoto and M. Onoda 476

NQR studies on magnetic properties of $La_{2-x}Ba_xCuO_4$
K. Kumagai, I. Watanabe, H. Aoki, Y. Nakamura, T. Kimura, Y. Nakamichi and H. Nakajima 480

^{57}Fe Mössbauer effects in high-T_c superconductor: Y–Ba–Cu oxides
S. Nasu, H. Kitagawa, Y. Oda, T. Kohara, T. Shinjo, K. Asayama and F.E. Fujita 484

Superconducting gap and excitonic mechanism of high-T_c superconductors
J. Tanaka, K. Kamiya, M. Shimada, M. Shimizu, M. Tanaka and Y. Tanaka 488

Superconductivity in hydrogen-doped $YBa_2Cu_3O_{7-x}$
T. Kamiyama, S. Tomiyoshi, M. Omori, H. Yamauchi, T. Kajitani, T. Matsunaga and H. Yamamoto 491

Pressure effect on T_c of $Y_1Ba_2Cu_3O_{7-y}$ and T_N of La_2CuO_{4-y}
T. Kaneko, H. Yoshida, Y. Syono, H. Morita, S. Abe, K. Noto and H. Fujimori 494

Positron annihilation studies of superconductors with high transition temperatures
M. Doyama, R. Yamamoto, Y. Suzuki, S. Ishibashi, A. Yamaguchi, H. Kumakura and K. Togano 497

Chapter 4. Organic superconductors

On the superconductivity type in the Bechgaard salts
L.I. Burlachkov, L.P. Gor'kov and A.G. Lebed' 500

Mechanism of superconductivity in organic superconductors
K. Yamaji 503

Superconductivity of the organic conductor, β-(BEDT-TTF)$_2$I$_3$ viewed from H_{c2} and the effect of impurity
K. Murata, M. Tokumoto, N. Toyota, I. Nashiyama, H. Anzai, G. Saito, Y. Muto, K. Katjimura and T. Ishiguro 506

Chapter 5. Superconductors in thin films and thin wires

Superconducting properties of superlattices (*Abstract*)
I.K. Schuller 509

Flux quantization on quasi-crystalline networks
P.M. Chaikin, A. Behrooz, G.S. Grest, D. Levine and B. Whitehead (*Abstract*) 509

Superconductivity near the metal–insulator transition
T.A. Miller, M. Kunchur, Y.Z. Zhang, P. Lindenfeld and W.L. McLean 510

Chapter 6. Alloys and intermetallic compounds

Anomalous electrical resistivity and structural instability in Ti–V alloys
T. Sasaki, S. Hanada and Y. Muto 513

High-field superconductivity in rapidly quenched Ge–M and Al_xO_y–M (M = Pb, Bi, Sn) alloys
K. Matsuzaki, A. Inoue, N. Toyota and T. Masumoto 517

Phonon contribution to high-T_c states in oxide superconductors and Nb_3Ge
T. Fukami, Y. Horie, T. Yasuda, F. Ono, M.L. Cheng, S. Takano and S. Mase 521

Studies of crossover and random walks on the chains with coupling in A-15 compound structure
C.D. Wu and R. Tao 524

Post deadline papers 528

Papers presented at the Conference, but not published in these Proceedings 532

List of contributors 533

Materials index 536

Analytic subject index 538